	Application No.	Applicant(s)
Notice of Allowability	10/666,231	HAY ET AL.
	Examiner	Art Unit	
	Hoang V Nguyen	2821	ᴨᴠ

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *application filed on 18 September 2003*.

2. ☒ The allowed claim(s) is/are *1-46*.

3. ☒ The drawings filed on *18 September 2003* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☒ None of the:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

        Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____.

HOANG V. NGUYEN
PRIMARY EXAMINER

Allowable Subject Matter

1.   Claims 1-46 are allowed.

2.   The following is an examiner's statement of reasons for allowance:

Regarding claim 1, Luh et al (USP 5,790,077) discloses a method for designing a shaped-reflector antenna. Luh, however, fails to teach the specific steps of providing an initial configurations of reflectors shaped with an initial reflector shaping process and feeds for the multibeam antenna for required beam directions, the process being an iterative optimization process for increasing the focusing of optical rays incident on the multibeam antenna from each of the beam directions; optimizing radiation patterns of the feeds by iterative process for satisfying required upper and lower bounds for gain radiation patterns of beams of the multibeam antenna; optimizing surface shapes and sizes of the reflectors by an iterative process for satisfying the required upper and lower bounds for the gain radiation patterns of the beams of the mulitbeam antenna.

Claims 2-13 are allowed for depending on claim 1.

Regarding claim 14, Luh et al discloses an apparatus for designing a shaped-reflector antenna. Luh, however, fails to specifically disclose means for providing an initial configuration of reflectors shaped with an initial reflector shaping process and feeds for the multibeam antenna for required beam directions, the process being an iterative optimization process for increasing the focusing of optical rays incident on the multibeam antenna from each of the beam directions; means for optimizing the radiation patterns of the feeds by an iterative process for satisfying required upper and lower bounds for gain radiation patterns of beams of the multibeam antenna;

and means for optimizing surface shapes and sizes of the reflectors by an iterative process for satisfying the required upper and lower bounds for the gain radiation patterns of the beams of the mulitbeam antenna.

Claims 15-26 are allowed for depending on claim 14.

Regarding claim 27, none of the prior art of record fairly teaches or suggests a computer program product comprising computer program code means for providing an initial configuration of reflectors shaped with an initial reflector shaping process and feeds for the multibeam antenna for required beam directions, the process being an iterative optimization process for increasing the focusing of optical rays incident on the multibeam antenna from each of the beam directions; computer program code means for optimizing the radiation patterns of the feeds by an iterative process for satisfying required upper and lower bounds for gain radiation patterns of beams of the multibeam antenna; and computer program code means for optimizing surface shapes and sizes of the reflectors by an iterative process for satisfying the required upper and lower bounds for the gain radiation patterns of the beams of the mulitbeam antenna.

Claims 28-39 are allowed for depending on claim 27.

Regarding claim 40, none of the prior art of record fairly teaches or suggests an apparatus for electromagnetically designing a shaped-reflector multibeam antenna comprising a storage unit for storing data and computer program code to be carried out by a processing unit; a processing unit coupled to the storage unit; the processing unit being programmed with the computer program code to provide an initial configurations of reflectors shaped with an initial reflector shaping process and feeds for the multibeam antenna for required beam directions, the

process being an iterative optimization process for increasing the focusing of optical rays

incident on the multibeam antenna from each of the beam directions; optimize the radiation

patterns of the feeds by iterative process for satisfying required upper and lower bounds for gain

radiation patterns of beams of the multibeam antenna; and optimize surface shapes and sizes of

the reflectors by an iterative process for satisfying the required upper and lower bounds for the

gain radiation patterns of the beams of the mulitbeam antenna.

Claims 41-46 are allowed for depending on claim 40.

3.   Any comments considered necessary by applicant must be submitted no later than the

payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for

Allowance."

Conclusion

4.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure:

- Patent 5,160,937 discloses a method of producing a dual reflector antenna system.

- Patent 4,757,325 discloses a method for designing sector beam antennas.

- Patent 4,755,826 discloses a method for designing a dual reflector antenna

    system.

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hoang V Nguyen whose telephone number is (571) 272-1825.

The examiner can normally be reached on Mondays-Fridays from 9:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Hoang Nguyen can be reached on (571) 272-1825. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

6.   Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hvn
11/19/04

HOANG V. NGUYEN
PRIMARY EXAMINER